

Abstract

We propose to measure the helicity asymmetry for the elastic scattering of polarized electrons from vector polarized deuterium. This will allow us to extract the vector response function, t_{11} , with high precision at $Q = 3.2 \text{ fm}^{-1}$ and at $Q = 3.8 \text{ fm}^{-1}$. These data can be combined with existing measurements of $A(Q)$ and $B(Q)$ to separate the monopole and quadrupole form factors near the diffraction minimum of the former. This experiment will provide strong constraints on theoretical descriptions of the deuteron, in particular it addresses the role of isoscalar meson exchange contributions.